

## Mapping Analysis used in this Document

The Department has adopted ESRI<sup>2</sup> Graphical Information System (GIS) software products for the mapping and analysis needed for the California Fire Plan. Along with mapping surface features a grid pattern is used to facilitate analysis. Sectioning a United States Geological Survey (USGS) 7.5 minute quadrangle map with a 9 by 9 grid pattern creates 81 cells. Each cell is approximately 450 acres and is called a Q81<sup>st</sup>. Data such as fuel type, assets at risk, ignitions, and etc is collected and stored for each cell. Each Q81<sup>st</sup> includes a Planning Belt Identification (PBID) that designates the cell as Interior Conifer, Brush, Grass, Woodland, Barren/Rock/Other, Desert, and Costal Conifer. The Unit can be divided into Planning Belts when mapped using the PBID.

The current fuel and Q81<sup>st</sup> PBID are in error in the foothill regions of Shasta County. The fuel errors are most prevalent in western Shasta County, to the east and north of Redding. Most of the area is currently listed as woodland or grasslands. This area was historically woodlands with some timber but was converted into brush lands as a result of early 20<sup>th</sup> century copper mining. In addition, much of the woodland areas east of Redding have sufficient brush to create a significant ladder fuel problem and they exhibit brush fuel model fire behavior and are treated as brush in the Danger Rating System.

The CDF Direct Protection Area (DPA) within the Unit is divided into five distinct areas when fuel type is combined with topography, weather, National Fire Danger Rating System areas, and modified to match existing Wildland Fire Response Area boundaries. These Fire Danger Rating Areas reflect historical average burning conditions and have been used for fire dispatch and planning in the Unit since 1991.

The Emergency Command Center uses the areas to determine the Fire Danger Rating and Dispatch Levels for the Unit based on daily weather observations. The Fire Danger Rating Areas are similar to, but not the same as the planning belts identified in the Units Q-81 data.

Many assessments of the Unit display the Q81<sup>st</sup> data utilizing the Fire Danger Rating Areas in order to be consistent with local fire dispatch policy and to more accurately reflect fuel types.

Areas of the Unit not included in the NFDRS areas are in the USFS and Direct Protection Area and are mostly in the Interior Timber planning belt.

The following map indicates the NFDRS Zones.

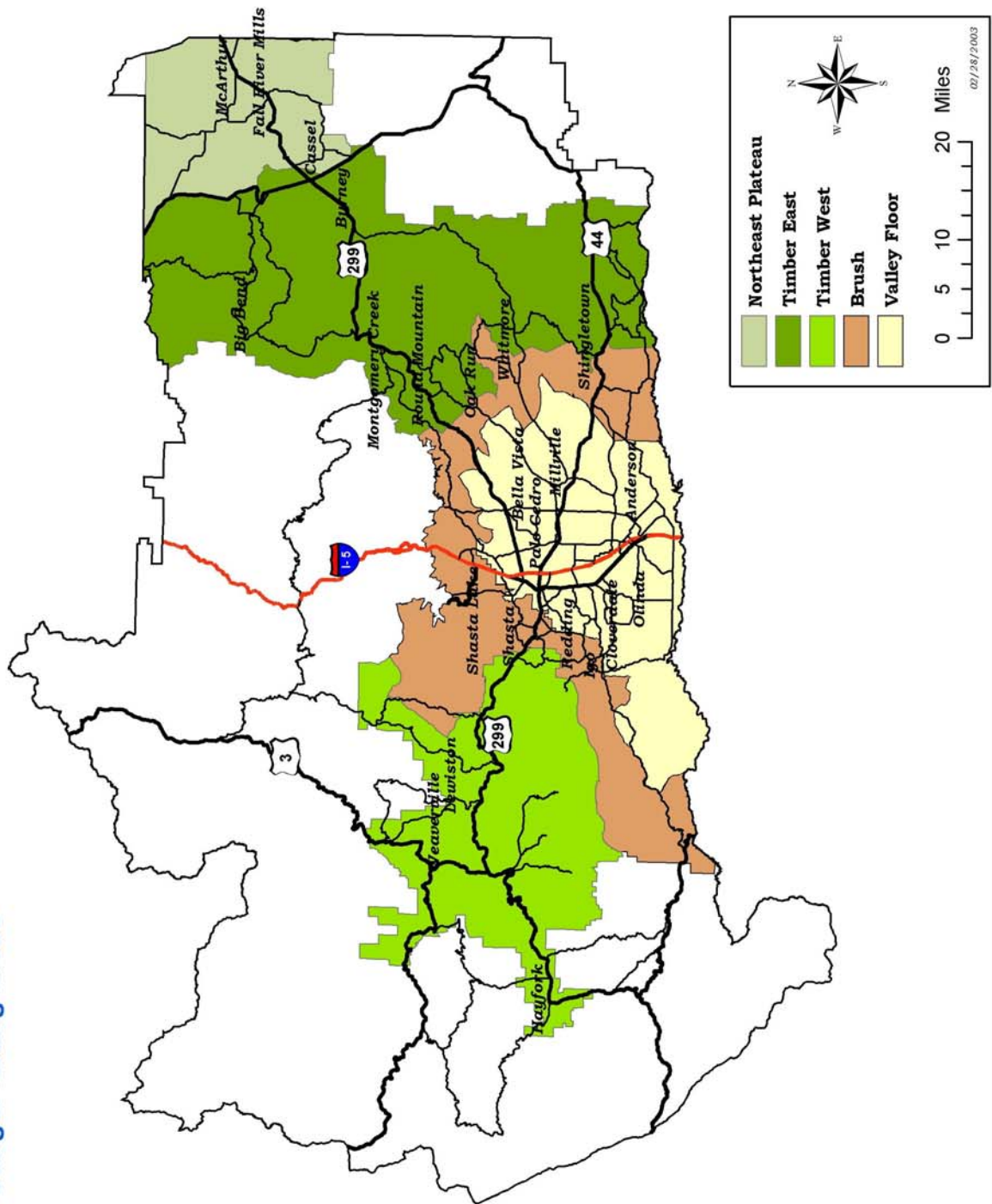
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<sup>2</sup> <http://www.esri.com/index.html>

# NFDRS Operating Plan

## Shasta - Trinity Unit

### Fire Danger Rating Areas



## Fire Danger Rating Areas

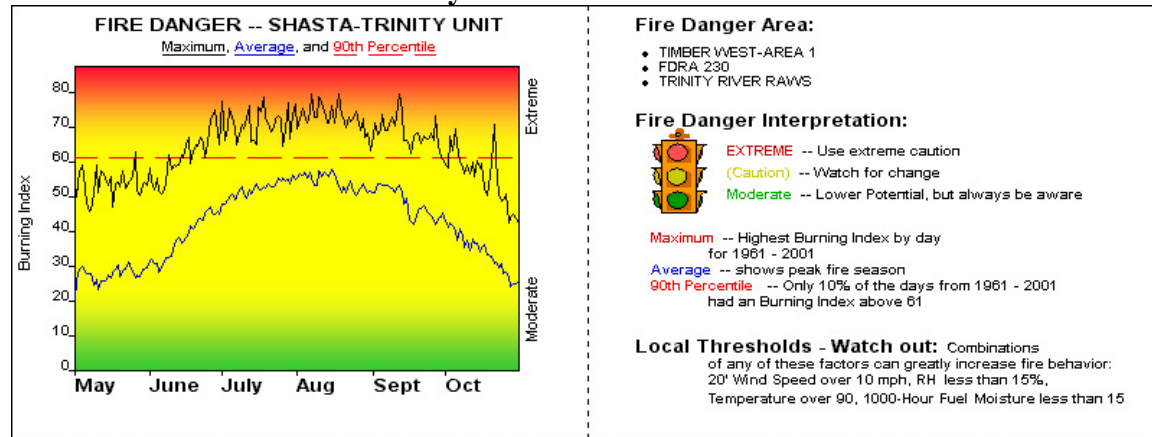
### Timber West

This area is the Douglas-fir/Ponderosa Pine forest of the CDF Direct Protection Area in Trinity County. It is in the Interior Conifer Q81<sup>st</sup> Planning Belt. The area is managed for timber production; therefore logging slash is a common fuel component. Sufficient undergrowth of ceanothus and manzanita is present to require consideration of a live fuel component. The larger communities within this area are Hayfork, Lewiston, and Weaverville. Smaller communities exist as well as various areas of urbanization. Most of the urbanization lies in the lower elevations of Trinity County in valleys or along streams.

Trinity County has experienced several catastrophic fires in recent history, damaging not only valuable timberlands, but also causing significant structure and private property loss.

Indicates a General Assessment of Fire Danger Potential  
based on historic weather

#### Timber West – Trinity River Remote Automated Weather Station



The Burning Index (BI) reflected on this and the following graph is a measure of fire intensity. It is represented by a number that relates to the potential amount of effort needed to contain a single fire in a particular rating area. It combines the Spread Component (SC) which rates the forward rate of spread, and the Energy Release Component (ERC), which is the estimated potential available energy released per unit area in the flaming zone of a fire. The BI generally, is ten times the flame length of the fire (BI of 40 = 4 foot flame length).<sup>3</sup>

<sup>3</sup> <http://www.fs.fed.us/r2/fire/drgloss.htm> Common terms - National Fire Danger Rating System (NFDRS)

## Brush Area

The mid elevations (1,000 – 2,000 ft.) surrounding the Sacramento Valley are merged into the brush area. The area is typically chaparral with chamise and manzanita. These elevations include oak woodland fuels with a high mixture of brushy fuels. Communities include the City of Shasta Lake, Mountain Gate, Shasta, Keswick, and French Gulch.

Most of the lands to the northwest of Redding were void of vegetation by the early 1900's due to copper mining and smelter operations. This area now consists of mostly brush fields that are 50 years old or older. There have been few significant fires in this area, as the brush did not contain sufficient dead material to sustain the fires (fuel models 5 and 6)<sup>4</sup>. The brush in these areas now has sufficient dead fuel and fine fuel to sustain large and damaging fires (fuel model 4).

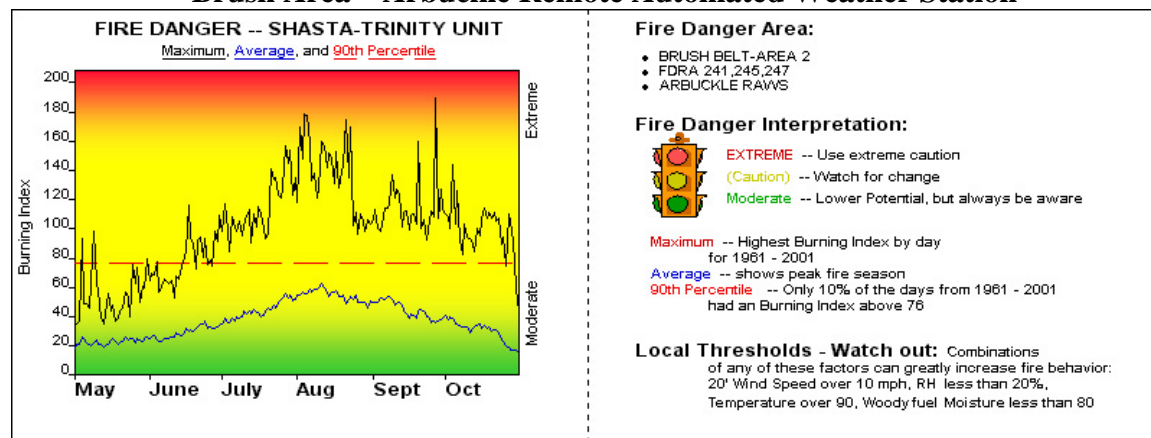
The lands to the west of Redding located at the base or lower levels of the mountains are covered mostly in brush or oak woodland with a heavy brush under story.

Most of the land west of Redding is highly urbanized which creates a high threat to life and property from wildfire. Subdivisions that were developed prior to 1982 often have narrow one-lane roads and no community water systems. Often the structures have a single access road. Some subdivisions were developed with "Fire Emergency Access" roads, however many of these roads are not maintained and are overgrown to the point of being impassable.

Communities in the Brush Area, west of Redding, include Igo, Centerville, Shasta, Keswick, The City of Shasta Lake, and portions of the City of Redding.

The brush area east of Redding is generally located in rangeland. However urbanization in the brush area exists in the western edge of the communities of Shingletown, Whitmore, Oak Run, Round Mountain, and Montgomery Creek. This area has experienced significant fires in the past and with the current urbanization can expect future fires to be more damaging.

### Brush Area – Arbuckle Remote Automated Weather Station



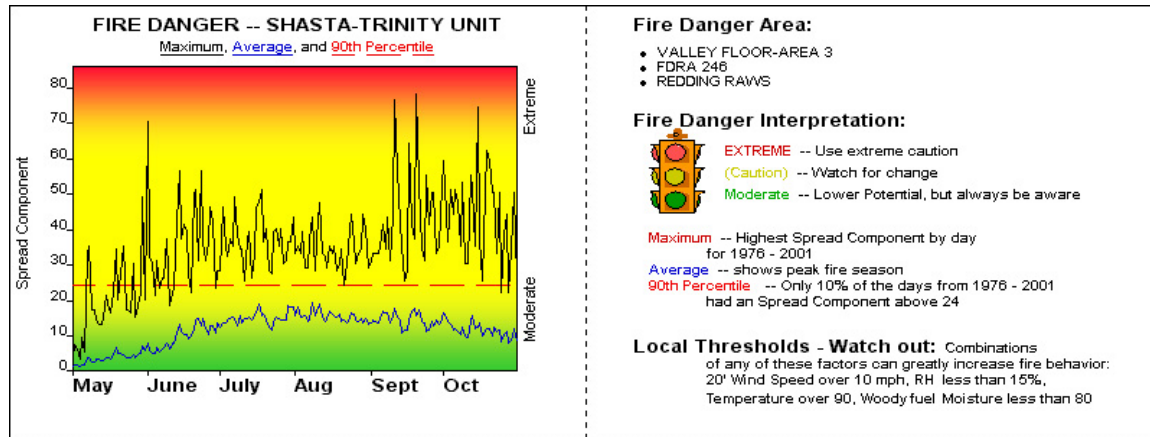
<sup>4</sup> "Aid to Determining Fuel Models for Estimating Fire Behavior" H.E. Anderson  
2005 Shasta – Trinity Unit Fire Plan

## Valley Floor (Grass Area)

This is the south-central part of the Unit extending from the Sacramento River outwards to an approximate elevation of 1000 feet. This is the most urbanized area of the Unit and includes the cities of Anderson, Redding, and the communities of Bella Vista, Cloverdale, Millville, Olinda, and Palo Cedro. The area is typically grassy woodland with blue oak, valley oak, gray pine, and annual grasses. There are also large areas covered by brush types and some of the woodland areas have a dense brush under story.

Significant fires have occurred on the valley floor. Because the primary fuel is annual grasses, each year the fire danger is recurring.

### Valley Floor – Redding Remote Automated Weather Station



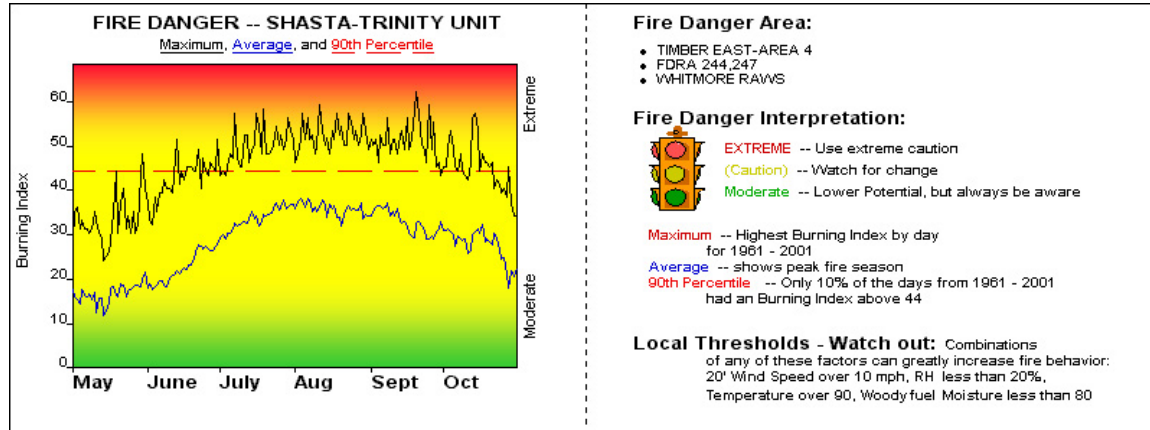
## Timber East

The Timber East area is the forested area east of Redding. The area extends from the 2,000-foot elevation of the Sacramento Valley to Highway 89. The majority of the area is managed for timber production. This is a mixed species conifer forest that varies from the Timber West Zone in topography, weather and some hardwood species. Slash and brush are part of the fuel component.

Several communities exist within this zone including, Shingletown, Whitmore, Oak Run, Round Mountain, Montgomery Creek, and Burney.

Significant damaging fires have occurred in this area resulting in large structure and timber loss.

### Timber East – Whitmore Remote Automated Weather Station





## Northeast Plateau

The Northeast Plateau is the area of CDF DPA east of highway 89. Much of the area is high elevation sagebrush, juniper and Ponderosa Pine. Large tracks of agricultural lands are in the Fall River Valley.

The larger communities in this area are Cassel, Fall River, and McArthur with significant urbanization occurring outside of these communities.

With the exception of the irrigated Fall River Valley, the area has experienced damaging fires. The most significant fires were located to the north of Highway 299E and east of Highway 89. Large and damaging fires have also occurred along Highway 89 south of the SRA lands near and around the communities of Hat Creek and Old Station.

### Northeast Plateau – Soldier Mountain Remote Automated Weather Station

